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Docket# 297-010113-US (PAR)
S/N 09/783,059

Title: Micromechanical Tunable...
Inventor: Tapani Ryhanen et al. Page # 1 of 17

0.90

0.80

0.70

0.70

0.60

0.50

0.50

0.40

Fig. 1 PRIOR ART

0.30

0.20

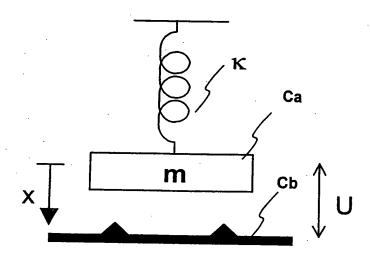
0.10

0.00

0.0

 $\textbf{U}_{\text{release}}$

2.0



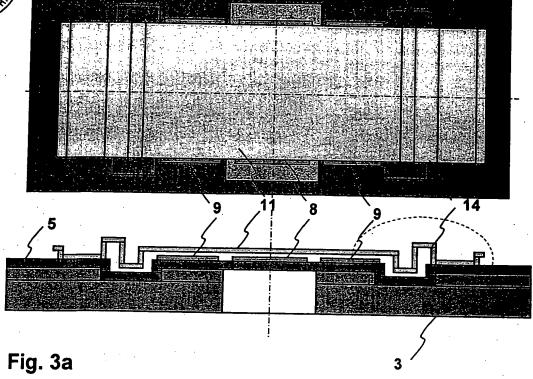
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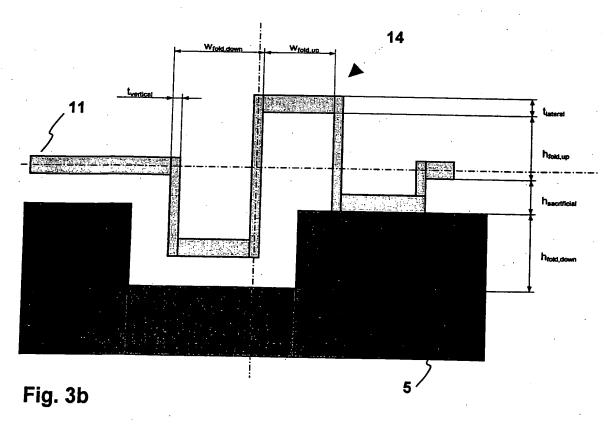
6.0

U_{pull-in} 8.0

Fig. 2 PRIOR ART

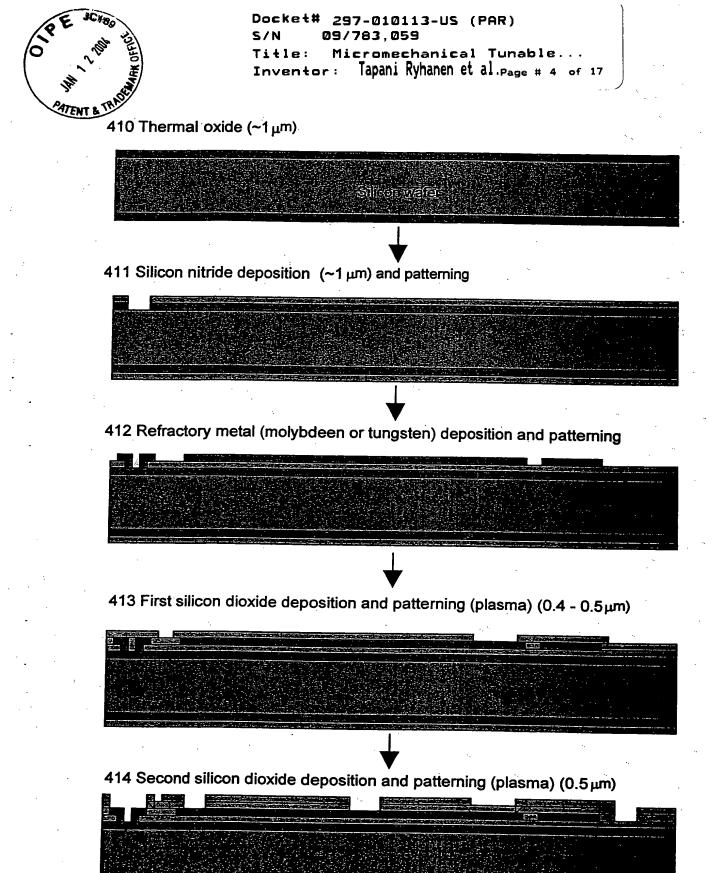
Docket# 297-010113-US (PAR)
S/N 09/783,059
Title: Micromechanical Tunable...
Inventor: Tapani Ryhanen et al.Page # 2 of 17





Docket# 297-010113-US (PAR) 09/783,059 Title: Micromechani al Tunable... Tapani Ryhanen et al. Page # 3 of 17 Inventor: 400 Deposition of thermal oxide on silicon wafer 417 Silicon nitride Silicon nitride deposition patterning Refractory metal Seed metal 418. deposition and deposition and patterning patterning Deposition and 413 patterning of first Backside stripping silicon dioxide Deposition and High aspect ratio patterning of second ICP etching silicon dioxide Possible polysilicon or 415 metal depositition, Electroplating (doping), annealing and patterning 416 Silicon nitride Sacrificial layer deposition wet etching

FIG. 4a





Docket# 297-010113-US (PAR)

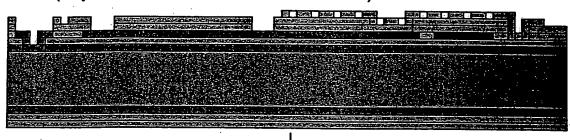
S/N 09/783,059

Title: Micromechanical Tunable...

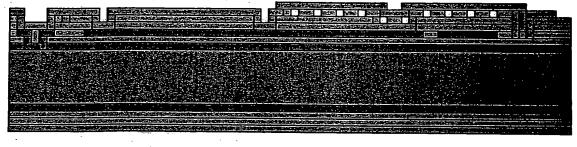
Inventor: Tapani Ryhanen et al. Page # 5 of 17

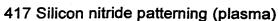


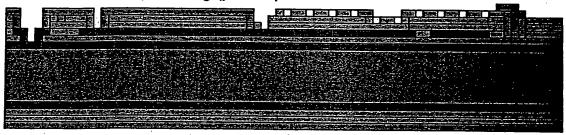
415 Polysilicon deposition (2-5 μ m), doping, annealing and patterning; (PolySi: < 5 Ω / \square ; tensile residual stress: 10 MPa)



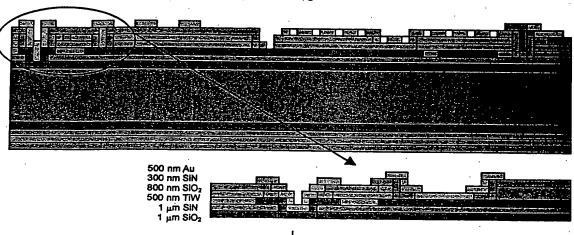
416 Silicon nitride deposition (0.3 μm)







418 Seed metal deposition and patterning



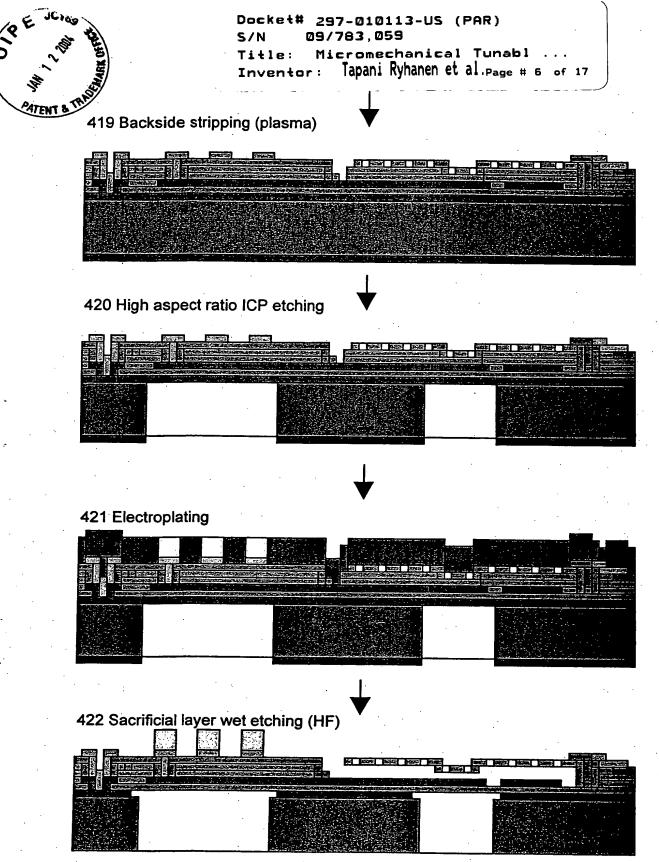
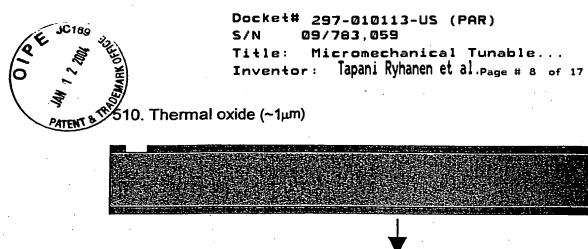
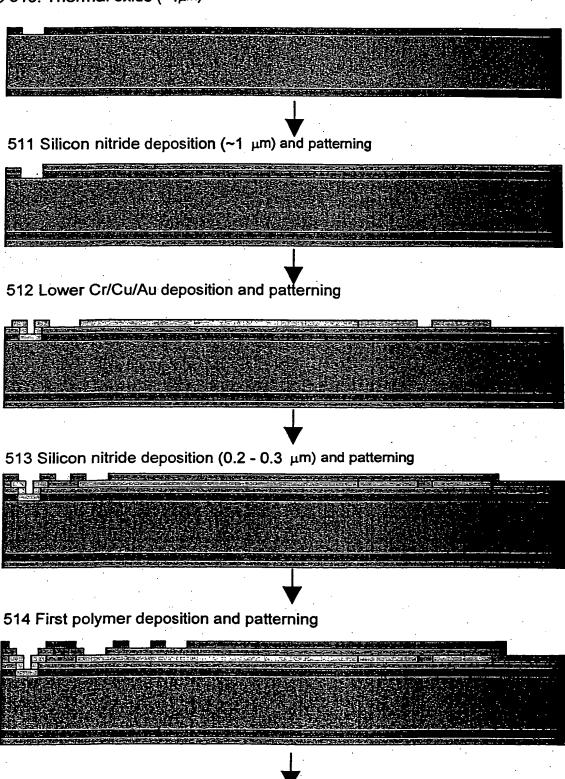


FIG. 4d

Docket# 297-010113-US (PAR) 09/783,059 S/N Title: Micromechanical Tunable... Tapani Ryhanen et al. Page # 7 of 17 Inventor: <u>500</u> Deposition of thermal oxide on silicon wafer Silicon nitride 511 deposition and patterning Deposition and 512 patterning of lower Cr/Cu/Au First silicon nitride Deposition and 513 deposition and patterning of patterning third Cu/Au Deposition 514 and patterning Electroplating of first polymer Deposition 519 High aspect ratio and patterning ICP etching of second Cu/Au Deposition and Removal of patterning of sacrificial second polymer polymer

FIG. 5a







Docket# 297-010113-US (PAR)

5/N 09/783,059

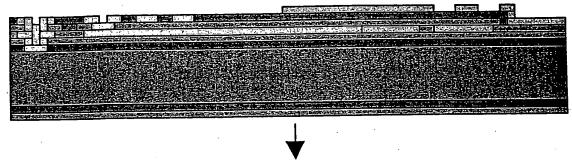
Title: Micromechanical Tunable...

inventor: Tapani Ryhanen et al._{Page} # 9 of 17

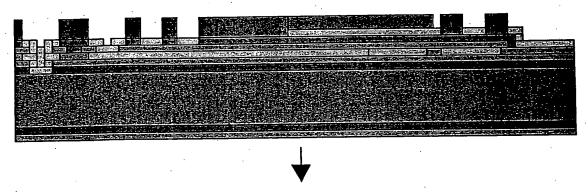




515 Second Cu/Au deposition and patterning



516 Second polymer deposition and patterning



517 Third Cu/Au deposition and patterning

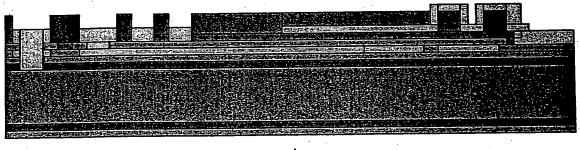




FIG. 5c

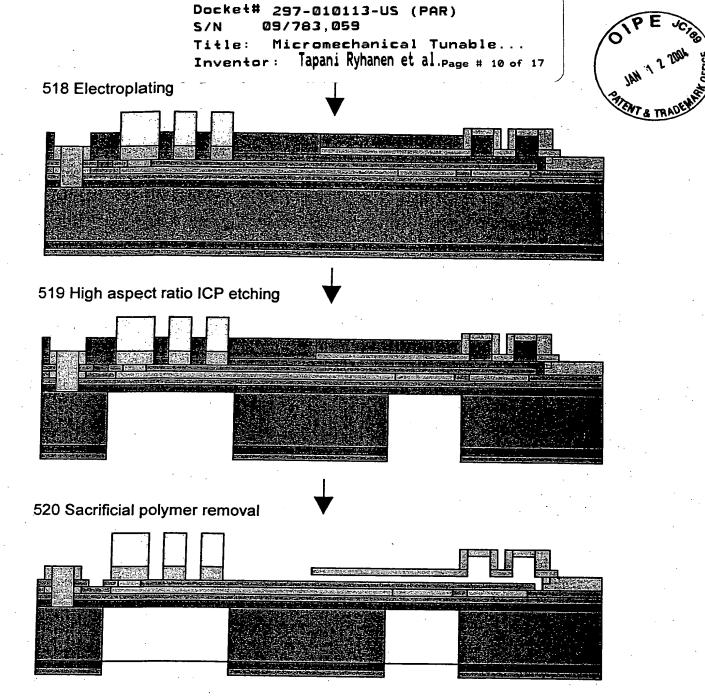


FIG. 5d



Docket# 297-010113-US (PAR)
S/N 09/783,059
Title: Micromechanical Tunable...
Inventor: Tapani Ryhanen et al.Page # 11 of 17

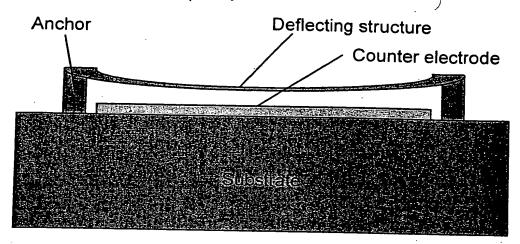


Fig. 6a PRIOR ART

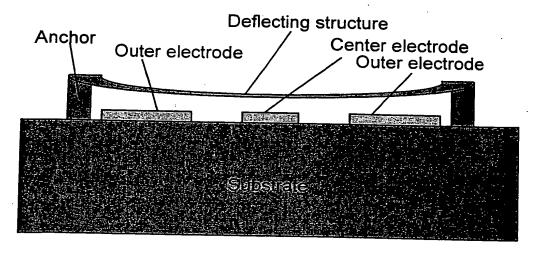


Fig. 6b

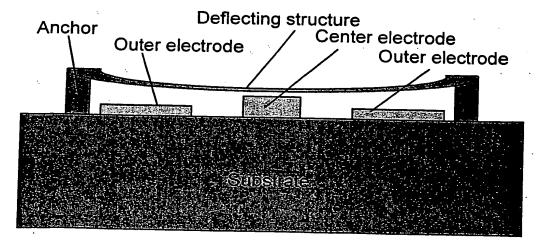


Fig. 6c



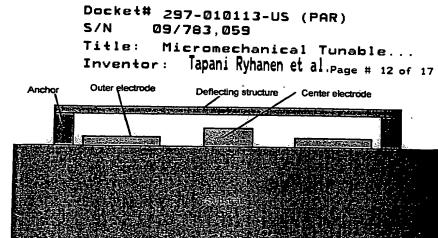


Fig. 7a

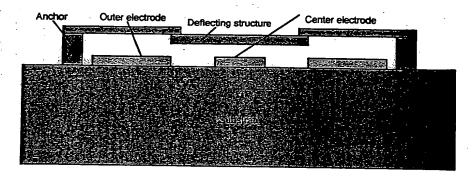


Fig. 7b

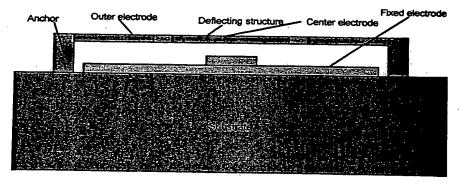


Fig. 7c

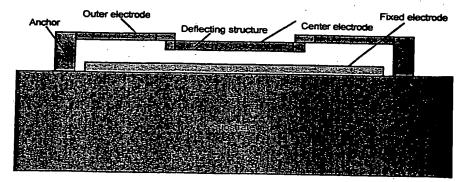
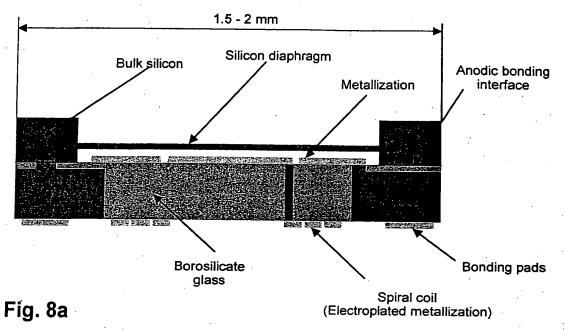


Fig. 7d



Title: Micromechanical Tunable...

Inventor: Tapani Ryhanen et al. Page # 13 of 17



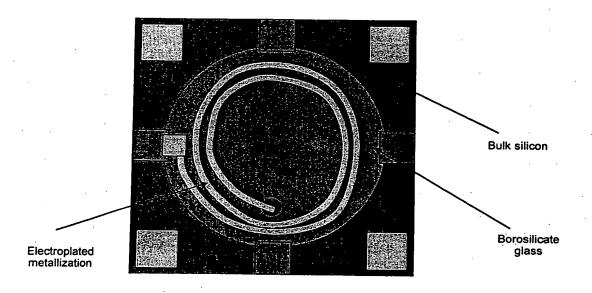


Fig. 8b

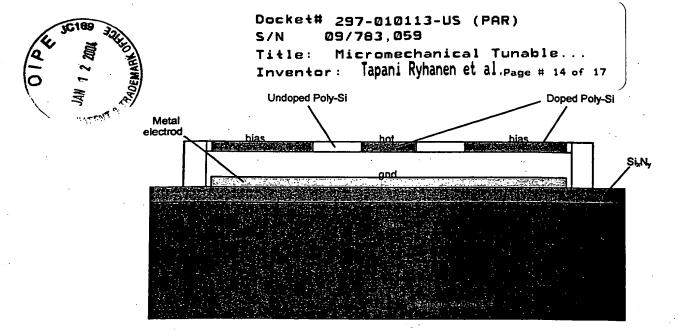


Fig. 9

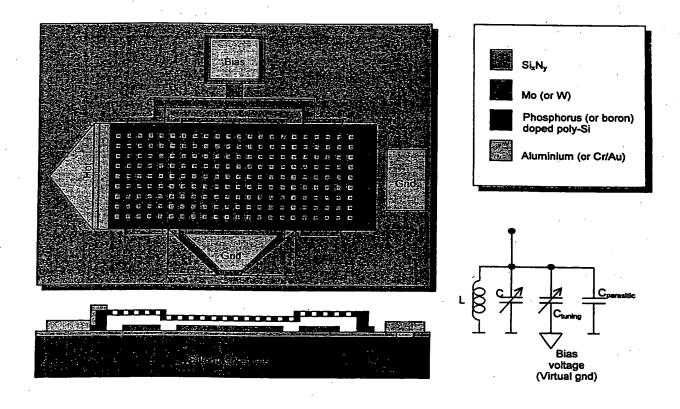
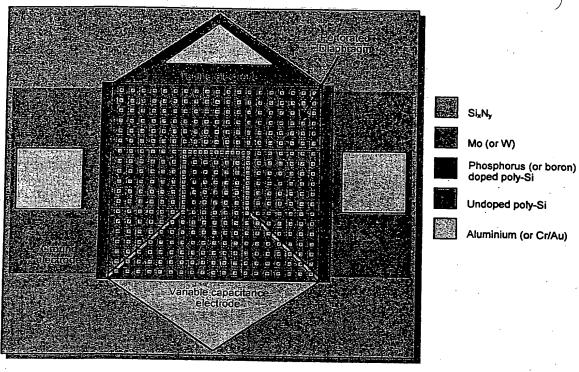


Fig. 10c



Micromechanical Tunable...
: Tapani Ryhanen et al._{Page # 15 of 17}



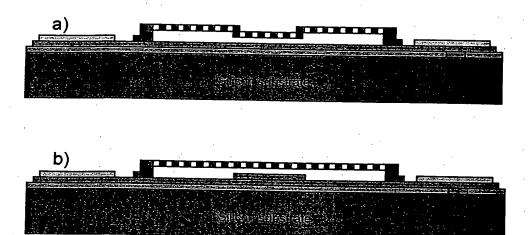


Fig. 10a,b



Title: Micromechanical Tunable...
Inventor: Tapani Ryhanen et al.Page # 16 of 17

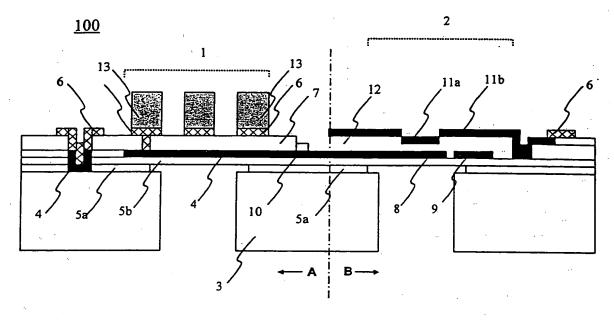


FIG. 11a

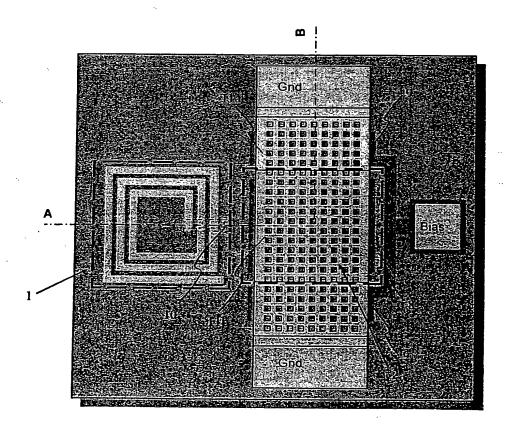


FIG. 11b



Title: Micromechanical Tunable...
Inventor: Tapani Ryhanen et al._{Page # 17 of 17}

